

Application No. 10/656,503
Docket No. 200310119-1

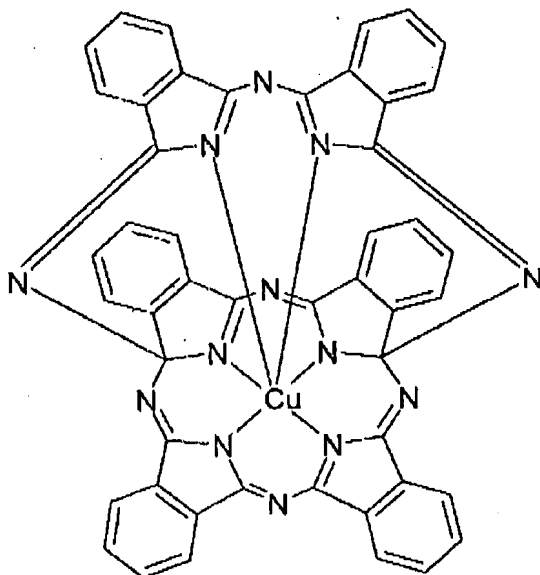
LISTING OF CLAIMS

1. (previously presented) A color forming composition, comprising:
- a) a dye precursor composition including a phthalocyanine precursor and a binder;
 - and
 - b) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm .

2. (original) The composition of claim 1, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

3. (original) The composition of claim 2, wherein the phthalocyanine precursor includes the following structure



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4. (original) The composition of claim 1, wherein the phthalocyanine precursor comprises a 1,3-diiminoisoindoline and a metal donor.

5. (original) The composition of claim 4, wherein said 1,3-diiminoisoindoline is a member selected from the group consisting of 1,3-diiminoisoindoline, 5-phenyl-1,3-diiminoisoindoline, 5-methoxy-1,3-diiminoisoindoline, and 4-aza-1,3-diiminoisoindoline and said metal donor is a metal complex of hydroxyethyl sarcosine.

6. (previously presented) The composition of claim 1, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethine indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyrrolyl dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrrolyl)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

7. (previously presented) The composition of claim 6, wherein the infrared absorber is a polymethine indolium dye, said polymethyl indolium dye being 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3H-indolium perchlorate.

8. (original) The composition of claim 1, wherein the color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to less than 850 nm.

9. (original) The composition of claim 1, wherein color forming composition is optimized for development in from about 100 μ sec to about 500 μ sec.

10. (currently amended) The composition of claim 1, wherein the binder is selected from the group consisting of cellulose acetate butyrate, ~~a cellulose acetate butyrate~~, polymethyl methacrylate, polyvinyl butyral, and mixtures thereof.

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11. (previously presented) The composition of claim 10, wherein the binder is a cellulose acetate butyrate.

12. (original) The composition of claim 1, further comprising a reducing agent admixed with the dye precursor.

13. (original) The composition of claim 12, wherein the reducing agent is a member selected from the group consisting of hydroquinone, phenidone, ascorbic acid, hydrazine, formamide, formic acid, and mixtures thereof.

14. (original) The composition of claim 13, wherein the reducing agent is hydroquinone.

15. (original) The composition of claim 1, wherein the color forming composition is spin-coatable.

16. (previously presented) A color forming composition, comprising:

- a) a dye precursor composition including a phthalocyanine precursor and a binder, said phthalocyanine precursor including a phthalocyanine and a leaving group both coordinated to a metal; and
- b) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm .

17. (previously presented) An optical disk, comprising an optical disk substrate having a color forming composition coated thereon, said color forming composition including:

- a) a dye precursor composition including a phthalocyanine precursor and a binder;
- and

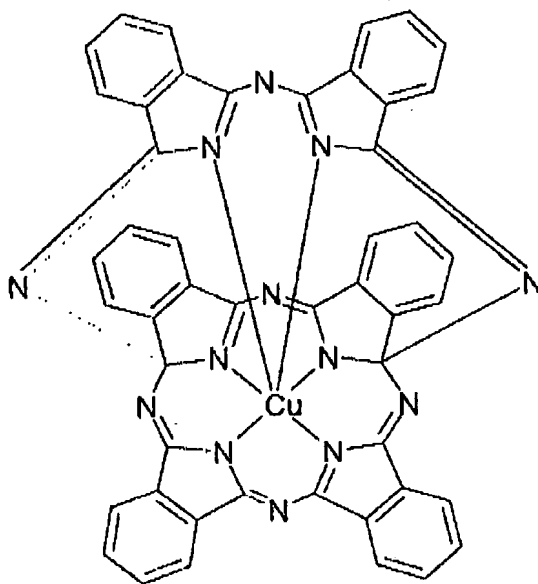
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b) an infrared absorber admixed with or in thermal contact with the dye precursor composition

wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μm to about 200 μm .

18. (original) The optical disk of claim 17, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

19. (original) The optical disk of claim 18, wherein the phthalocyanine precursor includes the following structure



20. (previously presented) The optical disk of claim 17, wherein the infrared absorber is selected from the group consisting of polymethine dyes, polymethine_indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyrroarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrro)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

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21. (original) The optical disk of claim 20, wherein the infrared absorber is 2-[2-[2-chloro-3-[2-(1,3-dihydro-1,3,3-trimethyl-2*H*-indol-2-ylidene)-ethylidene]-1-cyclopenten-1-yl-ethenyl]-1,3,3-trimethyl-3*H*-indolium perchlorate.

22. (original) The optical disk of claim 17, wherein the infrared radiation absorber is in thermal contact with the phthalocyanine precursor.

23. (previously presented) The optical disk of claim 17, wherein said binder is a cellulose acetate butyrate.

24. (original) The optical disk of claim 17, wherein said color forming composition is optimized for development using infrared radiation having a wavelength of from about 760 nm to about 800 nm.

25. (original) The optical disk of claim 17, further comprising a stabilizing agent admixed with or layered over the color forming composition.

26. (withdrawn) A method of forming color images on a substrate, comprising:

a) applying a color forming composition onto a substrate, said color forming composition being a mixture including:

- i) a dye precursor composition including a phthalocyanine precursor and a binder; and
- ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

said color forming composition being configured for development in less than 1 msec; and

b) applying infrared radiation to the color forming composition sufficient to cause reduction of the phthalocyanine precursor to form a phthalocyanine dye without decomposing the color forming composition.

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27. (withdrawn) The method of claim 26, wherein the energy is applied at from about 0.3 to about 0.5 J/cm².

28. (withdrawn) The method of claim 26, wherein the energy is applied for about 100 μsec to about 500 μsec.

29. (withdrawn) The method of claim 26, wherein the energy is applied using an infrared laser having a wavelength of about 780 nm.

30. (withdrawn) The method of claim 26, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

31. (withdrawn) The method of claim 26, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethyl indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyrroarylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrro)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

32. (withdrawn) The method of claim 26, wherein the substrate is an optical disk.

33. (currently amended) A system for labeling a substrate, comprising:

- a) an image data source;
- b) an optical disk substrate having a color forming composition coated thereon, said color forming composition comprising:
 - i) a dye precursor composition including a phthalocyanine precursor and a binder; and
 - ii) an infrared absorber admixed with or in thermal contact with the dye precursor composition,

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wherein said color forming composition is configured for development in less than about 1 msec when exposed to about 30 mW to about 50 mW of infrared radiation at a spot size from about 1 μ m to about 200 μ m; and

- c) an infrared radiation source operatively connected to the image data source and configured to direct infrared radiation having a wavelength of from about 760 nm to less than 800 nm to the color forming composition, wherein the infrared radiation source produces radiation having a spot size from about 1 μ m to about 100 μ m.

34. (original) The system of claim 33, wherein the phthalocyanine precursor includes a phthalocyanine and a leaving group both coordinated to a metal.

35. (previously presented) The system of claim 33, wherein the infrared absorber is a member selected from the group consisting of polymethine dyes, polymethine indolium dyes, metal complex IR dyes, cyanine dyes, indocyanine green, squarylium dyes, chalcogenopyrrolylidene dyes, croconium dyes, metal thiolate dyes, bis(chalcogenopyrrolyl)polymethine dyes, oxyindolizine dyes, bis(aminoaryl)polymethine dyes, merocyanine dyes, indolizine dyes, pyrylium dyes, quinoid dyes, and mixtures thereof.

36. (original) The system of claim 33, wherein the infrared radiation source produces radiation having a spot size from about 10 μ m to about 60 μ m.

37. (canceled).

38. (original) The system of claim 33, wherein the substrate is an optical disk.

39. (previously presented) The composition of claim 1, wherein the infrared radiation is applied at a single spot size of about 10 μ m to about 60 μ m.

40. (previously presented) The composition of claim 1, wherein the infrared radiation produces a heat flux from about 0.05 J/cm² to 5.0 J/cm².

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41. (previously presented) The composition of claim 1, wherein the infrared radiation produces a heat flux from about 0.3 J/cm^2 to 0.5 J/cm^2 .